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ABSTRACT

Since, by the time they enter school, children have developed a major portion of their spoken language system by being immersed in language, it seems probable that they could also apply these rules to the orthographic system if they were immersed in reading. Thus, learning to read by reading would allow the general formation of rules that could later apply to more specific levels at later stages of development. One hundred three kindergarten children participated in a study of assisted reading to test the validity of this hypothesis. Ten teachers, trained in treatment methods, were the sole administrators of the program. Results indicated that generally, for pupils of high, medium, and low ability, a supplementary period of instruction in experimental treatment methods produced a greater increase in reading behavior than a comparable exposure to more formal and phonetically oriented instruction. In addition, those children in the experimental group were more able to use their set for diversity, or the ability to process diverse kinds of sentences than were controls. (KS)

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Assisted Reading!

Learning to Read by Reading

CS002754

Introduction

Reading is a total language process that requires each child to make hypotheses about the writing system based on his language competence and his knowledge of the world. Each child must make predictions, test them, revise them, and reconstruct his hypotheses about the writing system. He must solve the problem of learning to read himself. Hoskisson (1975) suggests that children learn to read through a series of approximations that come closer and closer to the ability of a fluent reader just as children learn language initially in a series of stages that come closer and closer to replicating the adult language of their particular speech community.

In learning to speak children process the language they hear and from this input they construct the phonological, syntactic, and semantic systems of the grammar of that particular language. Each child must, therefore, have a set for diversity to be able to process the different kinds of sentences he hears. The spoken language is not broken up into bits and pieces for him. He learns to speak by being immersed in total language the way it is used in his environment. Each child must also have a set for pattern search that enables himto construct for himself the grammatical systems of the language of his speech community.

The child's language system is unique at each stage of development and is not a replication of the adult system at any of these early stages. Each succeeding stage, however, comes closer and closer to being a duplication of the adult grammatical system that is being constructed by the child. The child actually constructs a rule system (Brown, 1973) that makes it possible to generate an infinite variety and number of sentences, most of them never heard from anyone else. This rule system is a set of sentence construction rules (abstract rules) which the child extracts from the speech he hears, and which neither he nor his parents know in explicit form. It is by means of these rules that the child is able to

construct sentences that will communicate his intended meanings. It is also worthy to note that it is by the errors children make in their successive approximations to the adult grammar that give glimpses of this process of developing construction rules. (Hoskisson, 1975)

Since children, by the time they enter school, have constructed a major portion of their spoken language system by being immersed in language, it seems probable that they could also apply these rules of the langugage to the orthographic system by being immersed in reading. Under these circumstances (the child already knows language) it would make sense to use the sentence as the main unit in reading, rather than breaking sentences apart into bits and pieces of language and presenting these to the child. The most appropriate form of language for reading is the total context of written language. In other words, children should begin to learn to read by reading language that is fully developed in the context of stories. Thus, learning to read by reading would provide children with the general information they need to begin the process of verifying their hypotheses as to the nature of reading. Being immersed in reading would allow children to first formulate the most general rules about reading and develop the more specific aspects of reading at later stages of development.

Teaching Strategies

The study being reported in this paper represented an attempt to begin a program in which Kindergarten children would be provided with the opportunity to learn to read by reading. Assisted reading was the teaching strategy utilized. Assisted reading (Hoskisson, 1975 and 1974) consists of someone reading words, phrases or sentences in a story one at a time with the subjects repeating each phrase or sentence after the reader. The story is read in this manner by the subjects. The pages may also be reread as the reading proceeds through the story. The assumption is that if an educational agent can approximate the environment that

children had when learning to speak, they will be able to provide the optimum conditions for children to learn to read.

In assisted reading there is no formal hierarchy of reading skills imposed upon the child, to be taught one skill at a time. The child is immersed in reading; he is read to and he also reads. The books he reads are not restricted by a limited vocabulary. Children learn to transfer words they know from story to story but they begin the process of generalizing information about the orthography by seeing and hearing the same words repeated in the same contexts as well as in different contexts. Both repetition of stories and a variety of stories are important ingredients of assisted reading.

The first stage in assisted reading consisted of reading to the pupils and having them repeat the phrases and sentences after the teacher doing the reading. At first most of the children's attention was not on the lines of print as they repeated the words read to them. Some of them were looking around the room and some were looking at the pictures in the book, or at other parts of the book. In order to direct the children's attention to the lines of print the teachers moved their fingers under the words on each line as they read and had the pupils do likewise. By doing this the children began to see that lines of print are read from left to right and not in some random fashion as they may have initially thought. During this stage many different books were read by the children but most of them if not all of the books were re-read. The re-reading was important since the visual images of the words must be seen and read a large number of times in order to insure their recognition in other stories. At later stages of assisted reading one repetition of a word may be sufficient for subsequent recognition of the word in context.

As the children read a number of stories, they began to notice that some of the words occurred repeatedly. When they began this process of recognizing words

from story to story, they entered into the second stage of assisted reading. In this stage the teacher read and the children repeated the words except that now the teacher did not read the words the children showed some evidence of recognizing or the teacher thought they knew. The teachers in this stage read most of the words but left out those they felt the children knew, and they filled in those words the children didn't read. It was important not to have the fluency or flow of the reading interrupted. If the fluency of the reading was not maintained during this stage of assisted reading, the meaning of the passages read would not be grasped by the children because the syntactic and semantic cues that come from a smooth flow of language would not be available to them. When the normal junctures indicated by commas, periods, etc. were not processed correctly by the children, the meaning of what they were reading was not comprehended well. It was almost the same as if the pupils were reading lists of words that were strung out horizontally rather than vertically. It is important to maintain fluency. If the syntax is distorted, meaning is not readily available. The pre-primers used were not good books to use with assisted reading since the syntax was so poor that the children reading them were essentially reading lists of words presented in horizontal fashion rather than vertical.

The third stage of assisted reading began when the children were asked to read the words themselves. Stage 3 may be initiated by the children asking to read first or it may be introduced by the teachers requesting the pupils to read. When the children knew enough words to do the initial reading themselves, they did the reading and the teachers supplied the words the children did not know or had some difficulty recognizing. It is important to assist the pupils so that the fluency of the reading is not destroyed. When the children get to this stage, where they are doing the major portion of the reading, they tire more easily since they are struggling to use all the information they have acquired about the orthography and its relationship to their phonological systems. It is important to let

the pupils attempt to read the words they haven't seen before but they haven't constructed enough reading strategies at this point to enable them to read independently. The children at this stage need constant encouragement; they must not feel a sense of frustration or failure. The children will show signs of becoming independent, but they will do so in their own way. Individual differences must be respected and responded to with consideration of the success of each child in reading as the prime mover of any action taken.

Purposes

The purpose of the study was to determine if Kindergarten pupils could begin to read using assisted reading. In addition an attempt was made to test the hypothesis that pupils who were taught to read by assisted reading would perform better than children in the moral formal phonically oriented readiness programs employed by the school system where the study was conducted. It was also assumed that all the groups in the experimental treatment would achieve higher scores than the groups in the control condition.

There were many problems in this study that could not be avoided since the work had to be done during the last part of the school year. The research was not as neat as one would like since all the variables were not under the control of the persons conducting the study, nor the teachers who participated in it. This, however, is generally true of most research conducted in public schools where the researchers have no control over the school system.

Methods

One hundred and three kindergarten children participated in this investigation. Subjects for the study were selected in two steps. Ten experienced kindergarten teachers who had asked to participate in a study that would help them develop a beginning reading program were given training in the teaching strategy utilized. These teachers had previously classified each of their students for readiness accivities and had established high, middle and low groups

for the purpose of instruction. These groups were used in the project but if any ability group was larger than ten subjects the group was divided and each resulting homogeneous group was considered a separate entity. Two groups of subjects were then selected by the teachers from each classroom and one group was randomly assigned to the Experimental Condition and the other to the Control Group. The selection procedure resulted in two groups being assigned to the High Experimental Condition, four groups assigned to both the Middle and Low Experimental Condition, one group assigned to the High Control Condition, four groups assigned to the Middle Control Condition and three groups to the Low Control Conditions. There were 12, 23, 21, 7, 21 and 19 subjects in each of the groups respectively.

Because of the diverse geographic and socioeconomic areas from which students were drawn to attend the school, the population from which the subjects were selected for this investigation represented a cross section of socioeconomic groups. Based on their father's occupation and years of schooling, it was determined that this wide cross section of subjects was reflected rather equally in the Experimental and Control Groups.

The average age of the subjects in each group was also homogeneous. At the beginning of the investigation the Experimental High, Middle, and Low Groups had average ages of 67.7, 68.9, and 67.4 months respectfully. While the average age of the Control High, Middle and Low Groups was 68.0, 66.6 and 67 months respectively.

Design

The design of the study was 2 x 3 factorial design with subjects having been grouped on the basis of treatment condition (Experimental Control) and readiness level (High, Middle and Low). The readiness dimension was introduced as a blocking variable and the main effects resulting from it were not formally included in the discussion of the results.

Instrumentation

Because of the lack of any formal instruments to measure changes in reading

behavior in primarily non readers the experimenters devised a procedure to assess the initial occurrence of reading behavior. Six stories, two at each of three difficulty levels were selected as the basis of the assessment procedure. The six stories employed in this investigation were Airplanes (1964 and Daddy Is Home (1966) at the easiest level, At Home (1964) and Danny and the Dinosour (1958) at the middle level of difficulty and Here We Go (1964) and Harry the Dirty Dog (1956) at the greatest level of difficulty. The criteria used to judge the difficulty levels of the stories were the level of vocabulary used, length of the story and the author's or publisher's recommendations about the difficulty level of the story. Each of the teachers who participated in the study ranked the stories on each criteria and the results of the rankings were used to determine their level of difficulty. Another source of difficulty was the lack of multiple copies of books for the kindergarten children to read in the groups used in the study.

The pre and post testing was individually administered and no time constraints were placed on the subjects. During the testing each subject was requested to read as much of the stories as he could, starting with the easiest stories. If a subject was unable to read any of the words in the stories at the lowest level of difficulty, he was considered a non reader and was not asked to proceed to the stories at the higher difficulty levels.

As the subjects read each story the test administrator circled the words on a mimeographed copy of the story that the subject read. The number of words read were then counted by an independent scorer. The reading of specific words was only considered once in the subjects total score. All subsequent reading of the word was disregarded. The same scorer counted all the words for each subject. To insure correctness of the count a second scorer independently checked the results for each subject. If a discrepancy occurred between the scores each was

recounted until there was complete concurrence.

Three of the six stories; Daddy Is Home, Danny and the Dinosour, and Harry the Dirty Dog, were included as instructional material used with assisted reading. These materials were used with subjects for two weeks. The word counts relative to these stories constituted a direct measure of the treatment, while the results on the remaining three stories Airplanes, At Home and Here We Go, not used in the treatment were considered an index of the generalization effect of the treatment.

Procedure - The procedure of this investigation was divided into two parts: The training of the teachers and the administration of the treatment.

Training of the Teachers - Ten teachers participated in this investigation. They were the sole administrators of the testing and the treatment. They received training in the theoretical background, development and application of assisted reading comprising the experimental condition. Each teachers' application of the treatment during the experiment was monitored through weekly observations. In addition weekly meetings were held to provide feedback and to respond to any concerns the teachers might have.

Administration of Treatment - The treatment was incorporated into the school curriculum as a supplementary activity. Subjects in both the Experimental and Control Groups were involved, on a daily basis, in a structured language or reading program.

Experimental Group - The treatment was comprised of assisted reading and was administered to each group of subjects approximately thirty minutes a day, four days a week, for eight weeks. The amount of time allocated for each treatment per week varied. The actual appropriation of time for each activity is presented in Table 1.

Insert Table 1 About Here

In addition to the supplementary reading instruction provided during the treatment each subject in the Experimental Group was also enrolled in a formal and phonically oriented language or reading program. The High and Middle Readiness Groups were in either Distar Reading, The Starter Concept Cards, Look, Listen and Learn or Getting Ready to Read while the Low Readiness Group received daily instruction in Distar Language.

Control Group - The subjects in the Control Group were treated identically to the subjects in the Experimental Group, except they did not receive any supplementary instruction. Instead they received an additional thirty minutes of instruction in their formal reading or language program. This occurred at approximately the same time the Experimental Group was participating in the treatment.

All pre and post-testing was conducted during the same period of time for both the Experimental and Control Groups, with the order of subjects being randomized during both testing sessions.

Results

Three categories of data were considered in determining the effectiveness of the treatment; direct, generalization and total scores. The direct score represented the total number of words each subject read in the three stories that were used as both pre and post measures and instructional materials. The generalization score was determined by summing the number of words read in each of the stories that were exclusively used as pre and post measures. The total score was the sum of the number of words read by the subjects in the direct and generalization stories.

Effects of Treatment Condition

Gain score means were used to summarize the effects of the treatment and control conditions. Even though gain scores must be cautiously interpreted the authors believe strong support for the effectiveness of the experimental

treatment can be gleened from comparing the gain scores of the Low and Middle Experimental Groups with Control Groups at higher readiness levels. The gain score means for the direct, generalization and total measures for each group are presented in Table 2.

Insert Table 2 About

As can be observed the Low Experimental Group achieved substantially higher gain score means on the direct measures ($\bar{x}$ = 96.157), generalization measures ($\bar{x}$ = 13.430) and total measures ($\bar{x}$ = 110.097) than the High Control Group on the direct measures ($\bar{x}$ = 5.00), generalization measures ($\bar{x}$ = 1.290) and total measures ($\bar{x}$ = 6.430). In addition, comparisons between the Middle Control and Low Experimental Group and High Control and Middle Experimental Groups on all three posttest variables resulted in further support for the assumption that all experimental groups would manifest higher scores than any control group.

These data must be cautiously interpreted because of the occurrence of a treatment condition x readiness level interaction on the direct and generalization measure. The nature of the interaction on posttest direct scores is displayed in Figure 1.

Insert Figure 1 About Here

As can be observed the Low Experimental Group ($\bar{x}$ = 108.810) manifested a higher posttest mean score than the Middle Experimental Group ($\bar{x}$ = 65.609). And the High Experimental Group ($\bar{x}$ = 267.750) performed better than either of the lower groups. The trend was substantially more linear for the Control Group with the Low, Middle and High Groups achieving means of 6.368, 39.619 and 104.134 respectively.

The differences on generalization scores due to the differences in the treatment condition must also be cautiously interpreted.

Insert Figure 2 About Here

As can be observed in Figure 2 the Low Experimental Group ($\bar{x}$ = 13.429) again scored higher than the Middle Experimental Group ($\bar{x}$ = 10.826) but not as high as the High Experimental subjects ($\bar{x}$ = 51.667). A rather interesting function resulted in the relationship between the control condition and readiness levels. The Middle Control Group ($\bar{x}$ = 17.286) scored higher than either the Low ($\bar{x}$ = 2.684) or High ($\bar{x}$ = 1.286) Control Groups.

Within Group Variation

There were generally greater increases in the within group variation between the pre and posttests for the Experimental Group than Control Group. Included on Table 3 are the standard deviations for the pre and post direct measures.

Insert Table 3 About Here

As can be observed the Experimental Group within each readiness level evidences a greater increase in variation than the accompanying Control Group. A somewhat similar trend is presented in Table 4 for the generalization pre and post standard deviations.

Insert Table 4 About Here

Except for the High Experimental Group all other experimental groups displayed substantially greater increases in variation between the two tests than the associated Control Groups.

Discussion

The results of this study generally support the initial assumption that a supplementary period of instruction in which the Experimental treatment was used

produced a greater increase in reading behavior than a comparable exposure to more formal and phonically oriented instruction. These data were interpreted to support the assumption that children who are immersed in reading from the beginning are thus able to use all their grammatical systems to do better in beginning reading than those who are limited to one of the grammatical systems, i.e., the phonological system. The children in the Experimental Groups had access to the grammatical information in their syntactic, semantic, and phonological systems. Those in the Control Groups had access only to their phonological systems during instruction since the programs they were in were phonically oriented. The Control Groups were probably limited to little better than one third of their language competence while the Experimental Groups had almost total access since their reading was in the context of written language. Isolating words and letters from the syntactic and semantic relationships of words in sentences deprives children learning to read from using the syntactic and semantic information that is available in the total language context of stories.

In addition, those children in the Experimental Groups were able to use their set for diversity, that is, their ability to process diverse kinds of sentences and abstract from them relevant information. They were also able to use their set for pattern search which enables them to construct systems that produce meaning from the information they abstract from the total language context. Without total language context, children have more difficulty constructing for themselves, the nature of the orthographic system and may also find it difficult to understand the non-natural systems that they are expected to master in order to learn to read. The artificial reading systems that did not allow the children to use over half of their natural ability with language were not as efficient as assisted reading for the children in this study.

The hypothesis that all the Experimental Groups would score higher than

the Control Groups seem to be born out. No statistical treatment other than comparing means was done at this time, however the trend seems to be indicated by the total mean gain scores of all groups. It seems that those children who have access to more written language for reading are able to use more of their natural ability with language than those pupils who are restricted to phoneme/grapheme correspondences, words in isolation and very little written language, and thus learn more words. It would therefore seem to be very important to analyze carefully the type of reading programs that are used with children. Those programs that restrict children from using any of their natural ability with language and do not have the children read should not be used as the total reading program or even a major part of the reading program. It is important that children have access to total language when learning to read just as they had total access to language when learning to speak.

An interesting, but unexpected, interaction occurred when the Low Experimental Group scored higher than the Middle Experimental Group. This may be an indication that the groupings made by the teachers were not as homogeneous as they believed. It also may be an indication that some children in the low groups had more power with language than was apparent to the teachers. This may be true because teachers generally focus on surface language behaviors which are not necessarily accurate predictors of a child's competence with language. Some of the children in the Low Experimental Group probably had language competence that was not visible since the activities in the kindergarten did not offer the opportunity for them to utilize their competence more fully. The experimental treatment, however, provided them with the opportunity to use their language competence in a language environment that more closely approximated the natural language environment of being immersed in language. Some of the children in the Middle Group may have demonstrated surface language behavior that made the teachers believe that they had more language competence than some of the

children in the Low Experimental Group. In addition, there is the possibility that the teachers made the difference in the way they worked with the groups themselves. There was some evidence that some of the teachers were more willing to accept the basic assumptions of the study than others.

The large within treatment group variation may be explained on the basis of the subjects language competence as indicated above as well as the teachers use of the experimental treatment. The most likely explanation for this study is that some of the teachers were not committed to the experimental treatment since it was so radically different than the programs such as Distar that they were using. There was evidence of this in one of the lessons observed where a teacher was using flash cards instead of having the pupils meet all the words in the total context of written language. Therefore, the subjects in those groups were not given the full amount of time with a total language experience and had less enthusiasm displayed by the teachers than they would have received in the other programs these same teachers used with the Control Groups. The teachers who were enthusiastic may have had the reverse effect on their subjects. These teachers may have been so enthusiastically supportive of the experimental treatment that their pupils would also be enthusiastic about learning to read and be more willing to attend to the tasks.

There were several methodological limitations in this investigation that served to compromise the results. The most outstanding was the inability of the experimenters to completely monitor every treatment or control session. As was previously stated, there were violations of the parameters of the experimental and control conditions and it is highly likely that these variations provided uncontrolled sources of confounding. In addition, the children in the Experimental Group knew they were receiving a special treatment which may have caused them to be more motivated and subsequently achieve higher scores on the posttest.

In addition, the instrumentation was not as consistent with the learning to

read by reading orientation of the study as would be desirable. It would be valuable in addition to word counts to also know the number of complete phrases and sentences the subjects could read without miscues. It would also be important to use the Reading Miscue Inventory as a comprehension measure. This latter, however, would be more appropriate at the end of a full year of the experimental treatment. Standardized reading tests would not be good measures to use since the test items are not in total context of language and the comprehension measures are based on short paragraphs that rely on recall and do not develop the subject of the paragraph in enough detail for meaning to be coded in long term memory. In addition, the basic assumptions of standardized reading tests are that reading is composed of a set of sequential skills that can be isolated and tested. The problem of using appropriate measures for evaluation of a non-skills approach to reading instruction is relatively new and presents many difficulties which need to be overcome.

This study lends evidence to the opinions of teachers who have used assisted reading, that children can learn to read by reading and that it can be done in groups.

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Table 1

Appropriation of time (minutes)
to assisted reading (AR)

	Day			
	Monday	Tuesday	Wednesday	Thursday
Week	AR	AR	AR	AR
1	15	15	15	15
2	15	15	15	30
3	15	15	15	30
4	15	15	15	30
5	15	30	30	30
6	15	30	30	30
7	15	30	30	30
8	15	30	30	30

Table 2

Gain score means for
direct, generalization and total measures
for each group

Readiness Group	Treatment Group	Measures: Direct Scores	Scores: Generalization	Total Scores
Low	Experimental	96.157	13.430	110.097
	Control	5.790	1.903	7.737
Middle	Experimental	65.088	9.83	74.908
	Control	35.240	12.848	48.098
High	Experimental	299.420	39.080	338.500
	Control	5.00	1.290	6.430

Table 3

Standard deviations
for direct measures
for each group

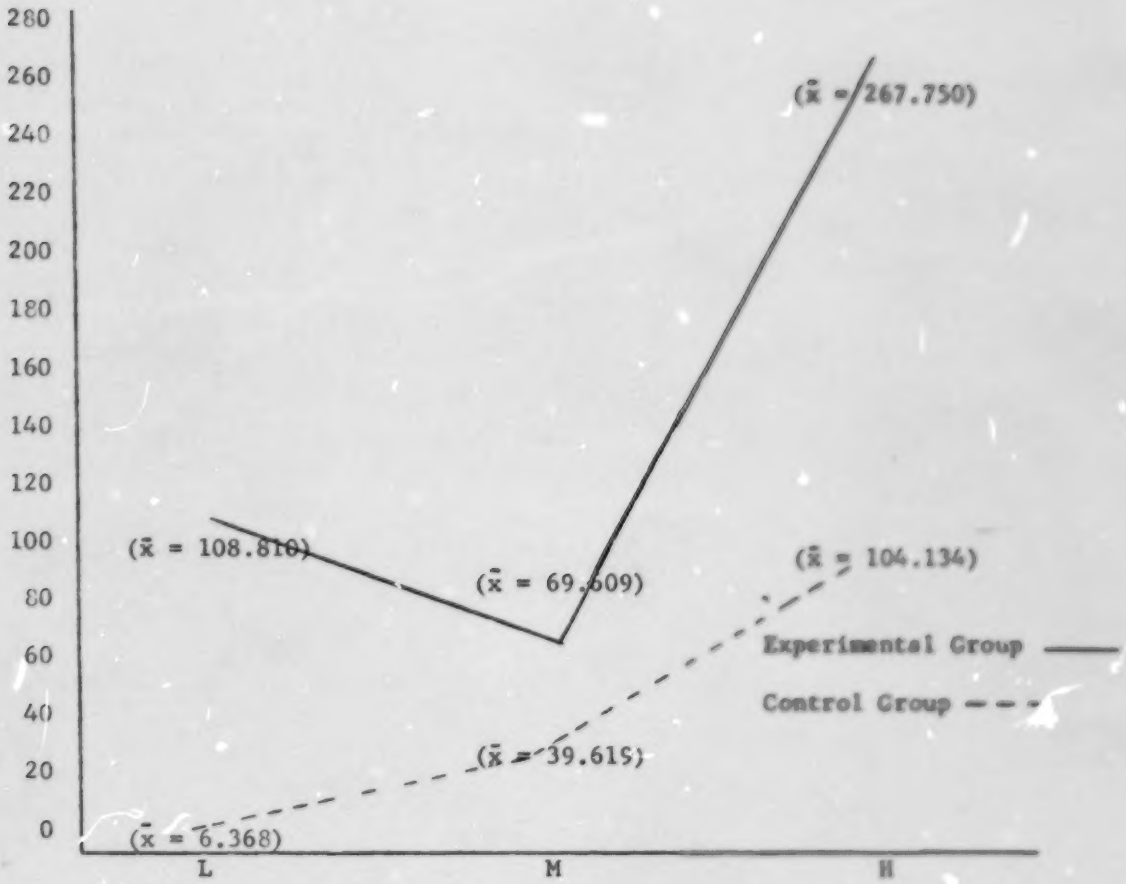
	Pretest	Posttest
Low Experimental	.218	102.046
Low Control	.315	14.108
Middle Experimental	.994	79.678
Middle Control	12.031	45.351
High Experimental	59.177	104.134
High Control	1.134	8.538

Table 4

Standard deviations
for the generalization
measures for each group

	Pretest	Posttest
Low Experimental	0	17.563
Low Control	1.558	5.468
Middle Experimental	2.449	13.234
Middle Control	6.727	20.310
High Experimental	18.328	19.938
High Control	0.0	2.360

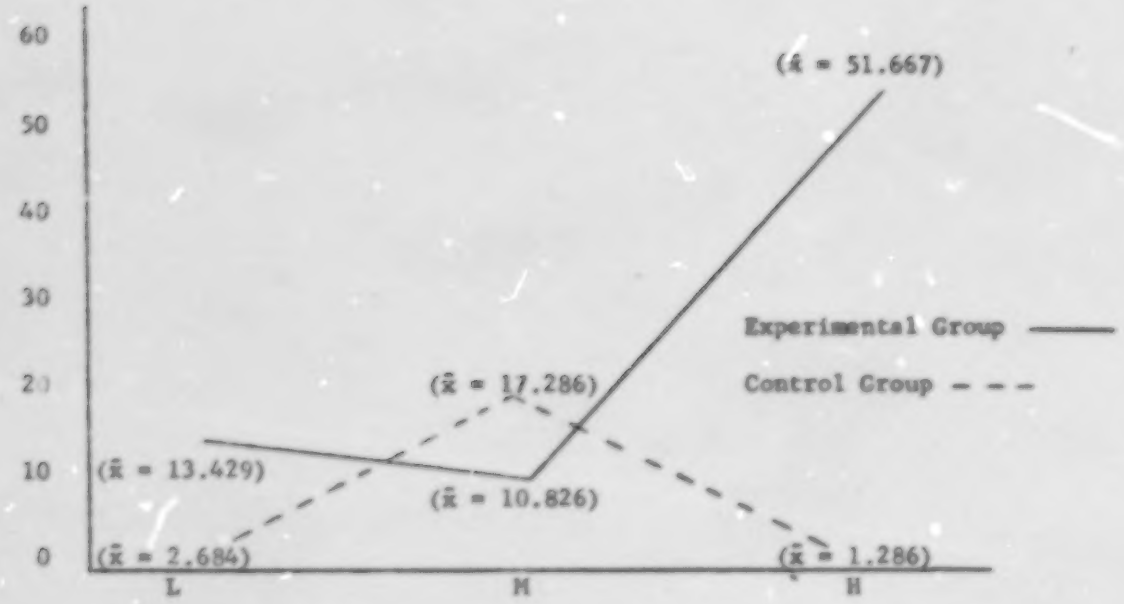
Figure 1



Readiness Level

Interaction between treatment group and readiness level on unadjusted direct posttest scores

Figure 2



Readiness Level

Interaction between treatment group and readiness level on unadjusted generalization posttest scores